

## **AMENDMENTS TO THE CLAIMS**

**Claim 1 (Currently Amended)** A data sending device for generating and outputting a sending signal based on biphasemark-encoded sending data, the data sending device comprising:

a biphasedecoding section for biphasemark-decoding the sending data; and

a sending section for generating and outputting the sending signal based on output data from the biphasedecoding section;

wherein:

the sending section includes a mapping section for mapping each symbol of the output data from the biphasedecoding section to any one of a plurality of signal levels, and generates the sending signal based on output data from the mapping section;

the sending data includes a data section to which biphasemark encoding is applied, and a non-data section to which the biphasemark encoding is not applied;

the biphasedecoding section detects the non-data section; and

when the biphasedecoding section detects the non-data section, the mapping section maps the non-data section using a mapping table which is different from a mapping table used for the data section.

**Claim 2 (Canceled)**

**Claim 3 (Currently Amended)** A data sending device according to claim-2 1, wherein the mapping section performs mapping such that a higher/lower relationship of the signal level of each symbol with respect to a reference level is constantly inverted on a symbol by symbol basis.

**Claim 4 (Canceled)**

**Claim 5 (Original)** A vehicle-mounted apparatus, having a biphasemark encoding function and includes a data sending device according to claim 1.

**Claim 6 (Currently Amended)** A data receiving device for generating and outputting receiving data based on a receiving signal, the data receiving device comprising:

a receiving section for receiving the receiving signal; and  
a biphase encoding section for generating the receiving data by biphase-mark-encoding  
output data from the receiving section and outputting the receiving data;  
wherein:  
the receiving signal includes a data section and a non-data section;  
the receiving section detects the non-data section; and  
when the receiving section detects the non-data section, the biphase encoding section  
converts the non-data section into a predetermined bit stream using a conversion table.

**Claim 7 (Original)** A data receiving device according to claim 6, wherein the receiving section includes a determination section for outputting data in accordance with a signal level of each symbol of the receiving signal.

**Claim 8 (Canceled)**

**Claim 9 (Original)** A data receiving device according to claim 6, wherein the receiving section generates the output data based on a clock signal recovered from the receiving signal.

**Claim 10 (Original)** A vehicle-mounted apparatus, having a biphase mark decoding function and includes a data receiving device according to claim 6.

**Claim 11 (Currently Amended)** A data transmission method for transmitting sending data including a data section to which biphase mark encoding is applied and a non-data section to which the biphase mark encoding is not applied, the data transmission method comprising the steps of:  
biphase-mark-decoding the data section of the sending data and mapping each symbol of a result of the biphase mark encoding to any one of a plurality of signal levels;  
detecting the non-data section from the sending data and mapping the detected non-data section using a mapping table which is different from a mapping table used for the data section;  
generating a sending signal based on a result of the mapping of the data section and the non-data section;

transmitting the generated sending signal;  
receiving the transmitted sending signal as a receiving signal;  
biphase-mark-encoding a part of the receiving signal corresponding to the data section;  
and  
detecting a part of the receiving signal corresponding to the non-data section, and  
converting the detected part into a predetermined bit stream using a conversion table.  
~~A data transmission method for transmitting biphase-mark-encoded sending data, wherein:~~  
~~—— the sending data is biphase-mark-decoded and then sent on a sending side; and~~  
~~—— the sending data is reproduced by biphase-mark-encoding receiving data on a receiving side.~~

**Claim 12 (New)** A data sending and receiving device comprising a data sending section for generating and outputting a sending signal based on biphase-mark-encoded sending data, and a data receiving section for generating and outputting receiving data based on a receiving signal; wherein:

the data sending section comprises:  
a biphase decoding section for biphase-mark-decoding the sending data; and  
a sending section for generating and outputting the sending signal based on output data from the biphase decoding section;

wherein:  
the sending section includes a mapping section for mapping each symbol of the output data from the biphase decoding section to any one of a plurality of signal levels, and generates the sending signal based on output data from the mapping section;

the sending data includes a data section to which biphase mark encoding is applied, and a non-data section to which the biphase mark encoding is not applied;

the biphase decoding section detects the non-data section; and  
when the biphase decoding section detects the non-data section, the mapping section maps the non-data section using a mapping table which is different from a mapping table used for the data section; and

the data receiving section comprises:  
a receiving section for receiving the receiving signal; and

a biphas encoding section for generating the receiving data by biphas-mark-encoding  
output data from the receiving section and outputting the receiving data;

wherein:

the receiving signal includes a data section and a non-data section;

the receiving section detects the non-data section; and

when the receiving section detects the non-data section, the biphas encoding section  
converts the non-data section into a predetermined bit stream using a conversion table.